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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,077	06/09/2005	Young-Hoan Jun	0630-2336PUS1	7190
2292 7590 02/22/2010 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
HAMO, PATRICK				
ART UNIT		PAPER NUMBER		
3746				
NOTIFICATION DATE		DELIVERY MODE		
02/22/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/538,077

Applicant(s)

JUN ET AL.

Examiner

PATRICK HAMO

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-7, 11, 12 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-7, 11, 12 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This action is in response to amendments filed on November 4, 2009.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In line 11 of claim 5, the limitation beginning "or comparing..." is indefinite because it is unclear in context if the limitation is drawn to "a control means for... comparing" or "cutting off a current applied to the compressor by... comparing." In context with the disclosure, it seems likely that the former is the intended interpretation and will be examined in the present action. However, it is also unclear if applicant intended to claim a control means for either, both, or only one of the functions stated. Examiner suggests using the word "and" in place of "or," as was done in the similar limitations in claim 12.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7, 11, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoo et al., US 6,565,327 in view of Fry et al., US 4,875,000, and further in view of Hwang et al., US 2002/0150477.

In regard to claims 5, 11 and 12:

Yoo discloses an operation control apparatus for a reciprocating compressor comprising voltage and current detection units, a stroke calculation unit based on detected V and I, varying the stroke based on a signal generated by a control unit. Yoo does not disclose an overcurrent cutoff system and any of its peripheral and structural elements.

However, Fry teaches an overcurrent cutoff system for an AC controller including a standard current value storing unit V_{ref} , a comparing unit 62, a control unit 64 for generating a cut-off signal, and a power supply device 22 cut off by the unit 64 in an overcurrent situation, when the voltage output from the current sensor is greater than V_{ref} . It is well known in the art that refrigerator compressors, such as that disclosed by Yoo, are especially sensitive to overcurrent situations. Fry's overcurrent cutoff system further outputs the resulting signal, whether the current is greater or less than the reference value, to a current control device in the form of switch 50 in the power supply device 22. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have modified the refrigerator compressor of Yoo

with the overcurrent cutoff system of Fry to protect the compressor from such situations by cutting off the source current to the compressor motor when the current is too high.

Yoo and Fry teach all of the limitations substantially as claimed except for comparing a detected stroke to a preset stroke reference value and increasing a voltage applied to the compressor by lengthening an on/off period when the stroke value is smaller than the reference or vice versa when the stroke value is greater than the reference. However, Hwang teaches a refrigerant compressor where a stroke controller 15 compares the stroke value based on the voltage 14 and current 12 applied to the compressor and compares it to a reference stroke to maintain a stable stroke (paragraphs [0010]-[0011]). Therefore it would have been obvious to a person having ordinary skill in the art at the time of the invention to have modified the invention of Yoo in view of Fry with that of Hwang to provide a stable compressor stroke. This stability is provided by comparing the stroke value based on a current value and a voltage value and, as would be obvious to a person having ordinary skill in the art, some constant relating to the specific motor, with the stroke reference value inputted to the controller 15, and increasing the stroke voltage to the compressor by lengthening the turn-on cycle of triac Tr1 (a current control means) when the estimated stroke is less than the reference stroke, and shortening the turn-on cycle when the estimated stroke is greater than reference (paragraphs [0010]-[0011]). In combination, it would further be obvious to a person having ordinary skill that this would operate when the detected current value is same as or smaller than the standard current value, otherwise the compressor would be shut off.

In regard to claim 6:

Yoo and Hwang teach a triac Tr1 as a current control means.

In regard to claim 7:

Yoo's compressor is installed on a refrigerator.

In regard to claim 15:

Yoo's microcomputer controls the ramp-up startup for the compressor while the compressor is running, which corresponds to the current being less than or the same as the reference current.

Response to Arguments

Applicant's arguments with respect to claims 5-7, 11, 12 and 15 have been considered but are moot in view of the new ground(s) of rejection. Examiner disagrees with the characterization of the references to Yoo and Fry in the remarks filed November 4, 2009, and maintains the propriety of the interpretations of those references. Even so, any deficiencies in those references are resolved by the reference to Hwang, as necessitated by the amendments to independent claims 5, 11 and 12.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **PATRICK HAMO** whose telephone number is (571)272-3492. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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